

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Art Unit 2154

Examiner Larry Donaghue

In Re:

Stephen Melvin et al.

Case:

P3813

Serial No.:

09/592,106

-Filed:

06/12/2000

Subject:

Method and Apparatus for Implementing Atomicity of Memory

Operations in Dynamic Multi-Streaming Processors

To:

The Commissioner of Patents

P.O. Box 1450

Alexandria, VA 22313-1450

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APR 1.6 2004

Technology Center 2100

Dear Sir:

Information Disclosure Statement under 37 C.F.R. §1.97

Enclosed herewith is an Information Disclosure Statement (IDS) by Applicant listing fifty-five (55) references. Under §1.98(d) no reference copies are required as they have been provided in priority application s/n 09/737,375. Applicant desires that the references be entered in the above-mentioned case as relevance dictates.

As this IDS is being filed with an RCE, in accordance with rule 1.97(b)(3), no additional fee is required. Please charge any deficiency or credit any overpayment to Deposit Account No. 50-0534.

Respectfully submitted, Stephen Melvin et al.

by

Donald R. Boys Reg. No. 35,074

Central Coast Patent Agency, Inc. P.O. Box 187 Aromas, CA 95004 (831) 726-1457

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Sheet

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Complete if Known				
Application Number	09/592,106			
Filing Date	06/12/2000			
First Named Inventor	Stephen M Ivin			
Art Unit	2154			
Examiner Name	Larry D. Donaghue			
Attorney Docket Number	P3813			

Examiner	Cite	Document Number	Publication Date	T DOCUMENTS Name of Patentee or	Pages, Columns, Lines, Where
initiais*	No.	Number-Kind Code ² (f Incom)	MIM-DD-YYYY	Applicant of Cited Document	Relevant Passages or Relevant Figures Appear
		US- 5600837 A *	02-04-1997	Artieri, Alain	
		US- 5461722 A •	10-24-1995	Goto, Tatuhiro	
		US- 5542088 A *	07-30-1996	Jennings, Jr. et al.	
		US- 5748468 A *	05-05-1998	Notenboom et al.	2505U/E
		US- 5745778 A *	04-28-1998	Alfieri, Robert	RECEIVE
		US- 5867725 A *	02-02-1999	Fung et al.	
		US- 5309173 A *	05-03-1994	Izzi et al.	APR 1 6 2004
		US- 5852726 A *	12-22-1998	Lin et al.	Contor D
		US- 5713038 A *	01-27-1998	Motomura, Masato	Fechnology Center 2
		US- 5812811 A *	09-22-1998	Dubey et al.	
		US- 5860017 A *	01-12-1999	Sharangpani et al.	
		^{US-} 5784613 A *	07-21-1998	Tamirsa	
		US- 5511210 A *	04-23-1996	Nishikawa et al.	
		US- 6119203 A *	09-12-2000	Snyder et al.	
		US- 5649144 A *	07-15-1997	Gostin et al.	
		US- 6061710 A *	05-09-2000	Eickemeyer et al.	
		^{US-} 6076157 A *	06-13-2000	Borkenhagen et al.	
		^{US-} 6029228 A *	02-22-2000	Cai et al.	
		US- 5561776 B1 *	10-01-1996	Popescu et al.	

		FOREIGN	PATENT DOCU	MENTS		
Examiner Initials*	Cite No.	Foreign Patent Document	Publication Date	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages	
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Translation is attached.

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* References not provided under §1.98, filed in priority application 09/312,302

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Application Number 09/592,106 06/12/2000 Filing Date First Named Inventor Steph n Melvin Art Unit 2154 Larry D. Donaghue **Examiner Name** Attorney Docket Number P3813

Sheet U. S. PATENT DOCUMENTS Cite Document Number **Publication Date** Name of Patentee or Pages, Columns, Lines, Where Examiner Relevant Passages or Relevant Figures Appear Initials" MM-DD-YYYY Applicant of Cited Document Number-Kind Code² #* US- 6535905 B1 * 03-18-2003 Kalafatis et al. US- 4200927 A * 04-29-1998 Hughes et al. US- 5933627 A * 08-03-1999 Parady, Bodo US- 5758142 A 05-26-1998 McFarling et al. ^{US-} 6016542 A * 01-18-2000 Gottlieb et al. ^{US-} 5361337 A 11-01-1994 Okin, Kenneth US- 6308261 B1 * 10-23-2001 Morris et al. APR 1 6 2004 US- 5946711 A 08-31-1999 Donnelly, Stephen ^{US-} 5815733 A Anderson et al. 09-29-1998 Technology Center 2100 US- 5987492 A 11-16-1999 Yue, Kelvin US- 6018759 A 01-25-2000 Doing et al. us- 6052708 A Flynn et al. 04-18-2000 US- 6212544 B1 * 04-03-2001 Borkenhagen et al. US- 5546593 A 08-13-1996 Kimura et al. US-5913049 A 06-15-1999 Shiell et al. US US-US-US

		FOREIG	N PATENT DOCU	MENTS		
Examiner Initials*	Cite No.1	Foreign Patent Document	Publication Date	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Retevant Passages	
		Country Code ³ Number ⁴ "Kind Code ⁵ (# known)	MM-DD-YYYY		Or Relevant Figures Appear	T ^a
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Examiner Signature		Date Considered	
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Complete if Known stitute for form 1449/PTO **Application Number** 09/592,106 Filing Date INFORMATION DISCLOSURE 06/12/2000 STATEMENT BY APPLICANT First Named Inventor Stephen Melvin Art Unit 2154 (Use as many sheets as necessary) Larry D. DonaghueTechnology Center 2100 **Examiner Name Attorney Docket Number** Sheet 3 5 P3813 of

Examiner Initials*	Cite No.1	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue	T ²
	ļ	number(s), publisher, city and/or country where published.	ļ
		* FISKE et al., "Thread Prioritization: A Thread Scheduling Mechanism for Multiple-Context Parallel Processors", 1995, pp 210 -221, IEEE	
		* YAMAMOTO, Wayne, "An Analysis of Multistreamed, Superscalar Processor Architectures", University of California Santa Barbara dissertation, December 1995, Santa Barbara, US	
		* STEERE et al., "A Feedback - Driven Proportion Allocator for Real-Rate Scheduling", Third Symposium on Operating Systems Design and Implementation, February 1999, pp.145-158, USENIX Association	
		* YAMAMOTO et al., "Increasing Superscalar Performance Through Multistreaming", 1995	
		 * TULLSEN et al., "Simultaneous Multithreading: Maximizing on-Chip Parallelism", 22nd Annual International Symposium on Computer Architecture, June 1995, Santa Margherita Ligure, Italy 	
		* YOAZ et al., "Speculation Techniques for Improving Load Related Instruction Scheduling", 1999, pp 42-53, IEEE	
		* KESSLER, R.E., "The Alpha 21264 Microprocessor: Out-of-Order Execution at 600 Mhz", August 1998	
		* YAMAMOTO ET AL., Performance Estimation of Multistreamed, Superscalar Processors, IEEE. 1994, pp 195-204, Hawaii, US	
		* NEMIROVSKY et al., "Quantitative Study of Data Caches on a Multistreamed Architecture", Workshop on Multithreaded Execution Architecture and Compilation, January 1998	
		* LI et al., *Design and Implementation of a Multiple-Instruction-Stream Multiple-Execution-Pipeline Architecture*, 7th International Conference on Parallel and Distributed Computing and Systems, October 1995, Washington D.C.	

Examiner		Date	
Signature	·	Considered	

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Paperwork Reduction Act of 1995, no persons are required to respond to a collection of Information unless it contains a valid OMB control number Complete if Known stitute for form 1449/PTO **Application Number** 09/592,106 **Filing Date** INFORMATION DISCLOSURE 06/12/2000 STATEMENT BY APPLICANT **First Named Inventor** Stephen Melvin Art Unit 2154 Larry D. Donaghu Fechnology Center 2 00 (Use as many sheets as necessary) **Examiner Name** Attorney Docket Number Sheet 4 5 P3813 of

Examiner Initials*	Cite No.1	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T²
		* The PowerPC Architecture: A Specification for a New Family of RISC Processors, Second Edition, May 1994, pp 70-72, Morgan Kaufmann, San Francisco	
		* MC68020 32-Bit Microprocessor User's Manual, Third Edition, 1989, pp 3-125, 3-126, and 3-127, Prentice Hall, New Jersey	
		 POTEL, M.J., Real-Time Playback in Animation Systems, Proceedings of the 4th Annual Conference on Computer Graphics and Interactive Techniques, 1977, pp. 72-77, San Jose, CA 	
		* ARM Architecture Reference Manual, 1996, pp. 3-41, 3-42, 3-43, 3-67, 3-68, Prentice Hall	
		* ESA/390 Principles of Operation, IBM Library Server, 1993 , Table of Contents and Para. 7.5.31 and 7.5.70 (available at : http://publibz.boulder.ibm.com/cgi-bin/bookmgr_OS390/BOOK/DZ9AR001/CCONTENTS)	
		 MC88110 Second Generation RISC Microprocessor User's Manual, 1991, pp. 10-66, 10-67 and 10-71, Motorola, Inc. 	
_		* DIEFENDORFF, KEITH et al., Organization of the Motorola 88110 Superscalar RISC Microprocessor, IEEE Micro, April 1992, pp.40-63, Vol. 12, No. 2	·
		* KANE, GERRY, PA-RISC 2.0 Architecture, 1996, pp 7-106 and 7-107, Prentice Hall, New Jersey	
		* DIEFENDORFF, KEITH et al., AltiVec Extension to PowerPC Accelerates Media Processing, March - April 2000, pp. 85-95, IEEE Micro, Vol. 20, No. 2	
		 NEMIROVSKY ET AL., DISC: Dynamic Instruction Stream Computer, ACM, 1991, pp 163-171 	

Examiner	Date .	
Signature	Considered	

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Application Number 09/592,106 Filing Date 06/12/2000 First Named Inventor Stephen Melvin Art Unit 2154 **Examiner Name** Larry D. Donaghue **Attorney Docket Number** P3813

4		NON PATENT LITERATURE DOCUMENTS		
	T ²	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	Cite No. ¹	Examiner Initials*
		* DONALSON ET AL., "DISC: Dynamic Instruction Stream Computer, An Evaluation of Performance", 26th Hawali Conference on Systems Sciences, 1993, pp 448-456, vol. 1		
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